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Collaborative Management Approach for Logistics Flow Management of Cuban Medicine Supply Chain

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Abstract : Despite the progress made in logistics and supply chains fields, it is unavoidable the development of business models that use efficiently information to facilitate the integrated logistics flows management between partners. Collaborative management is an important tool for materializing the cooperation between companies, as a way to achieve the supply chain efficiency and effectiveness. The first face of this research was a comprehensive analysis of the collaborative planning on the Cuban companies. It is evident that they have difficulties in supply chains planning where production, supplies and replenishment planning are independent tasks, as well as logistics and distribution operations. Large inventories generate serious financial and organizational problems for entities, demanding increasing levels of working capital that cannot be financed. Problems were found in the efficient application of Information and Communication Technology on business management. The general objective of this work is to develop a methodology that allows the deployment of a planning and control system in a coordinated way on the medicine's logistics system in Cuba. To achieve these objectives, several mechanisms of supply chain coordination, mathematical programming models, and other management techniques were analyzed to meet the requirements of collaborative logistics management in Cuba. One of the findings is the practical and theoretical inadequacies of the studied models to solve the current situation of the Cuban logistics systems management. To contribute to the tactical-operative management of logistics, the Collaborative Logistics Flow Management Model (CLFMM) is proposed as a tool for the balance of cycles, capacities, and inventories, always to meet the final customers' demands in correspondence with the service level expected by these. The CLFMM has as center the supply chain planning and control system as a unique information system, which acts on the processes network. The development of the model is based on the empirical methods of analysis-synthesis and the study cases. Other finding is the demonstration of the use of a single information system to support the supply chain logistics management, allows determining the deadlines and quantities required in each process. This ensures that medications are always available to patients and there are no faults that put the population's health at risk. The simulation of planning and control with the CLFMM in medicines such as dipyrone and chlordiazepoxide, during 5 months of 2017, permitted to take measures to adjust the logistic flow, eliminate delayed processes and avoid shortages of the medicines studied. As a result, the logistics cycle efficiency can be increased to 91%, the inventory rotation would increase, and this results in a release of financial resources.

Keywords : collaborative management, medicine logistic system, supply chain planning, tactical-operative planning
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